DERWENT-ACC-NO:

2005-386511

DERWENT-WEEK:

200539

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TITLE: Hydroforming metal part by introducing high

pressure

fluid to die interior to expand the metal part

against

die interior surface of the die, in which the

high

pressure fluid has pulse applied to the fluid

INVENTOR: NOTTROTT, A; SANS, B C

PATENT-ASSIGNEE: MAGNA INT INC[MAGNN]

PRIORITY-DATA: 2003US-520868P (November 17, 2003)

PATENT-FAMILY:

PUB-NO PUB-DATE LANGUAGE

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DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN

CO CR CU

CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE

KG KP KR

KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH

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RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM

ZW AT BE

BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LU

MC MW MZ

NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

APPLICATION-DATA:

PUB-NO APPL-DESCRIPTOR APPL-NO

APPL-DATE

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November 15, 2004

INT-CL (IPC): B21D026/02, B21D026/06

ABSTRACTED-PUB-NO: WO2005049245A

8/22/05, EAST Version: 2.0.1.4

BASIC-ABSTRACT:

NOVELTY - Metal part is hydroformed by placing a metal part to be formed within

a die; closing the die to enclose the metal part; and introducing a high

pressure fluid to an interior of the die for expanding the metal part against

an interior surface of the die. The high pressure fluid has a pulse applied to

the fluid to increase a material flow of the metal part within the die.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a hydroforming assembly comprising:

- (A) die (514) assembly;
- (B) blank positioned in the die assembly;
- (C) pressurized fluid within the die assembly to force the blank against a wall of the die assembly to conform the blank with the wall of the die assembly; and
- (D) pulse-generating device (5) coupled to the pressurized fluid to provide a pulse to the pressurized fluid to create pulsing magnitudes of pressure of the pressurized fluid against the blank to force the blank against the wall of the

die assembly.

USE - For hydroforming metal part (claimed).

ADVANTAGE - The use of the pulse flow of pressure increases the material flow $\ \ \,$

in the die thus resulting in a more consistent wall thickness in the part

portions. It improves the flow of material to ensure that the wall thickness

of the metal part does not become too thin and to prevent the formation of

wrinkles, i.e. at bend areas.

system utilizing the pulse generating device.

Pulse-generating device 5

Fluid line 40

Tubular metal blank 510

Die cavity 512

Die 514

CHOSEN-DRAWING: Dwg.2/2

TITLE-TERMS: HYDROFORMING METAL PART INTRODUCING HIGH PRESSURE FLUID

DIE

INTERIOR EXPAND METAL PART DIE INTERIOR SURFACE DIE HIGH

PRESSURE

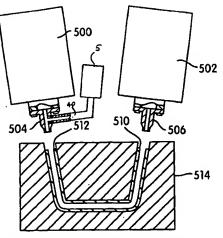
FLUID PULSE APPLY FLUID

DERWENT-CLASS: M22 P52

CPI-CODES: M22-G03D1;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2005-119667 Non-CPI Secondary Accession Numbers: N2005-313440



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